



Portfolio Brief

Nortel Networks

Contivity VPN Switches for enterprises and service providers

Savvy enterprises have been quick to see the potential in IP (Internet protocol) virtual private network (VPN) services—which use secure IP technology to extend private networking anywhere within the reach of the Internet.

Nortel Networks has the comprehensive technology to create highly scalable, secure, and robust IP VPNs to connect your multi-location enterprise and supply chain—or for service providers to offer IP VPNs as a managed service.

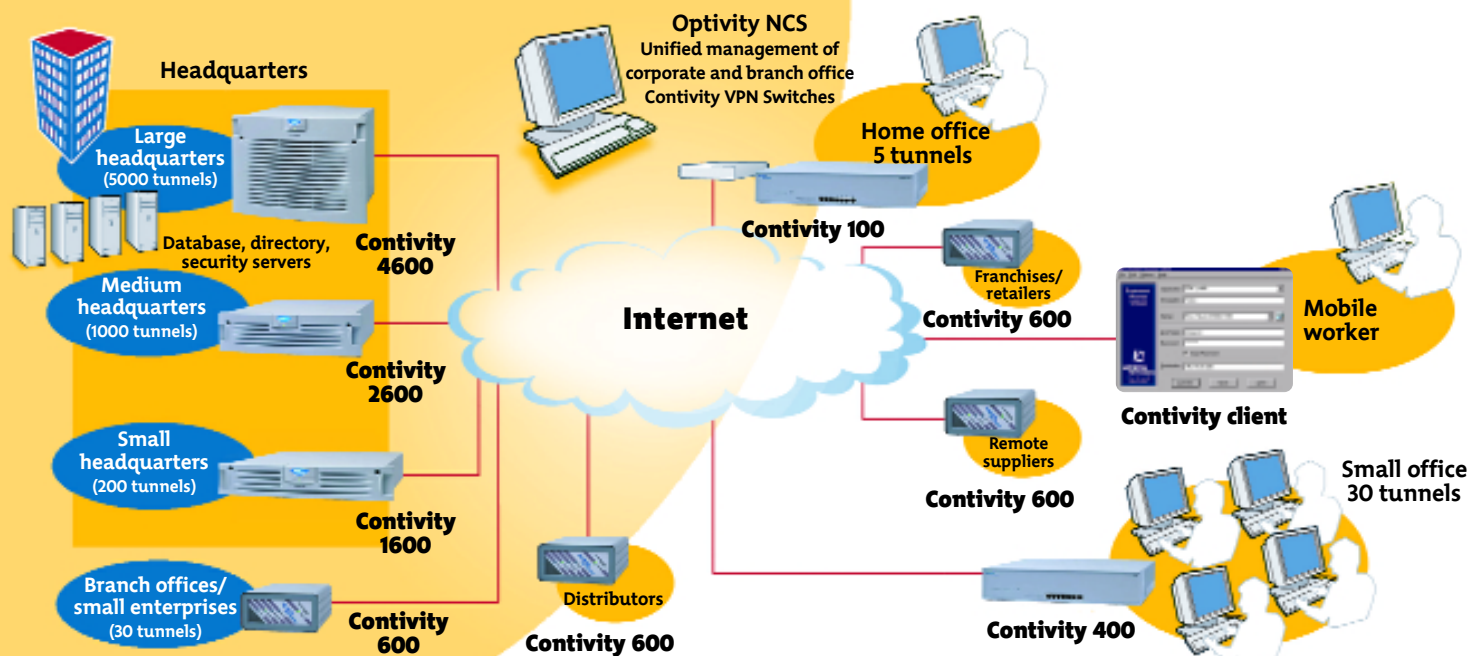
The complete product family includes models scaled to suit large corporations, mid-sized companies, branch locations, external supply chain associates, and small offices.

The Contivity* VPN Switch is an ideal solution for enterprises or service providers building IP VPNs—for intranets, extranets, and remote access.

A single hardware device provides routing, firewall, bandwidth management, encryption, authentication, and data integrity for secure tunneling across IP networks and the Internet.

Consider how easy it is to securely network the multi-location enterprise—whether you are providing the service to your own organization or as a managed service provided to enterprise customers.

**NORTEL
NETWORKS™**



A model to match every enterprise requirement

The industry-leading Contivity family includes models for every application—from home offices to large corporate headquarters:

- The **Contivity 4600** is the premium offering in the Contivity family, providing secure, efficient VPN connectivity for up to 5000 tunnels.
- The **Contivity 2600** provides full-featured performance and security for locations that require up to 1000 tunnels.
- The **Contivity 1600** offers unusually flexible solutions for office centers, campuses, or branch offices needing up to 200 tunnels.
- The **Contivity 600** gives small branch offices/small enterprises the flexibility of up to 30 simultaneous VPN tunnels in both remote access and branch office settings.
- The cost-effective **Contivity 400** is targeted for branch offices requiring up to 30 branch tunnels.
- The economical **Contivity 100** provides basic† branch connectivity for small offices requiring a limited number of branch tunnels.

This robust and easily managed technology made Nortel Networks the global leader to service providers in the VPN gateway market, according to a 3Q2001 market analysis report from Synergy Research Group.

Remote access, intranet, and extranet solutions

Enterprises can deploy Contivity VPN Switches on their own, or outsource deployment to one of many service providers that offer Contivity Managed Service.

Either way, Contivity VPN Switches offer multi-location enterprises some compelling service choices: extranet VPNs, intranet VPNs, and remote access VPNs.

Enterprises enjoy secure connectivity with business partners far beyond the reach of their private network, using extranet VPNs.

Imagine the level of efficiency and customer service they can achieve by linking the entire supply chain—manufacturing, distribution, resellers, retailers, and consumers—without the expense of dedicated, leased lines.

Why not use the Internet or public data networks to connect business sites, such as branch offices? With **intranet VPN** service, authorized users gain the performance of a private network without the capital and operating costs or the limitations of private networks or leased lines.

Why pay an average of \$1500 per user per year for modem banks to give remote access to dial-in users? With **remote access VPN** service, enterprises can slash \$1000 off that per-user price tag while giving users a broader range of the latest access technologies, such as cable modems and digital subscriber line (DSL).

Contivity VPN Switches are also key in the Nortel Networks Virtualized Networking solution—which combines IP VPNs with powerful service intelligence. The result is an agile, dynamic, subscriber-aware network that puts users in control of the networking experience. Contivity VPN Switches are the secure, full-featured on-ramp to the Virtualized Network.

† Not all high-end functions described in this document apply to the branch models. See the comparison chart beginning on the next page for a summary of features/functions by model.

Technical specifications—features and capabilities

Contivity VPN Switches - models 600, 1600, 2600, and 4600

Tunneling protocols	- Point-to-point tunneling protocol (PPTP), including compression and encryption; L2F, L2TP - IPsec, including authentication header (AH), encapsulating security protocol (ESP), and Internet key exchange (IKE)
Routing protocols	RIP v1, RIP v2, OSPF, VRRP
Authentication services	- Internal or external lightweight directory access protocol (LDAP) - Remote authentication dial-in user services (RADIUS) - Token card integration: Security Dynamics and AXENT,** e.g. SecureID - Digital certificate authentication with Entrust** and VeriSign,** Smart Card integration—Entrust compatible
Encryption	- Federal Information Processing Standard 140-1 Level 2 certified - IPsec-certified by the International Computer Security Association (ICSA) - DES, 3DES, RC4 3DES uses 3 independent 56-bit keys; 168-bit key length (effective encryption strength of 128 bits)
Firewall services	- Contivity Stateful Firewall, including stateful packet inspection, audit, network address translation (NAT) - Filtering on individual user or group profile; source and destination interface (tunnel, physical or any); source and destination address; IP port, service, and protocol type - Logging, traps, and audit trails - Anti-spoofing - Denial of Service protection against hacker attacks (e.g., Syn Flood, Ping of Death, ICMP unreachable, Smurf)
Bandwidth management	Group-level configurable minimum bandwidth settings, priority levels using random early detection (RED); four admission control levels; four forwarding priority levels; eight DiffServ (Differentiated Services) queues; code point marking; quality of service (QoS); resource reservation protocol (RSVP)
Accounting	- Internal and external RADIUS accounting - Event, system, security, and configuration accounting - Automatic archiving to external system
Management	- Full HTML and Java** configuration; SNMP alerts; bulk load configuration; NNCLI; four levels of administrator access; role-based management to separate service provider and end-user management - Batch configuration and management of multiple Contivity switches - Nortel Networks IP VPN Service Management Solution
Reliability	- Powerful, market-leading Intel processor architecture - Multi-level authentication servers - Automatic backup of all system data - Redundant components on Contivity 4600
Client software	- Free client for Windows** 95, 98, 2000, XP, Millennium, or Windows NT** 4.0 or later - Licensable client for Macintosh OS, Solaris, Linux, HP-UX, and IBM-AIX - IPsec, including AH, ESP, IKE, third-party main and aggressive mode clients - Auto-configuration with “one-click” connection - Support for Windows embedded tunnel protocols, including Windows 2000 L2TP/IPsec; mix and match with existing Nortel Networks clients or other tunnel protocols such as PPTP and L2TP

Contivity VPN Switches - models 100 and 400

Tunneling protocols	IPsec—including Internet Key Exchange (IKE) with shared secret
Routing protocols	RIP v1, RIP v2
Authentication services	Password Authentication Protocol (PAP); Challenge Handshake Protocol (CHAP); password protection on all management and update processes including: Telnet, GUI, Web access, and IPsec management tunnel, MD5 and SHA authentication options
Encryption	DES, 3DES
Security	Stateful firewall (requires NAT)
WAN support	Frame relay; point-to-point protocol (PPP)
Remote management	Includes all local options (GUI/WEB/CLI) on local and public interfaces, as well as policy-limited management through IPsec management tunnels. Firmware upgrades are controlled through a fail-safe GUI-driven process which is implemented either locally or remotely.

Technical specifications—corporate/enterprise models



	Contivity 1600	Contivity 2600	Contivity 4600
	Up to 200 tunnels	Up to 1000 tunnels	Up to 5000 tunnels
Components	- Memory: <i>Standard</i>—128MB <i>Maximum</i>—256MB 400 Mhz processor - One PCI expansion slot - Interfaces: <i>Standard</i> 2 10/100 Ethernet LAN ports <i>Optional</i> - Additional 10/100 Ethernet - V.35/X.21 - T1 with integrated CSU/DSU - Software: <i>Standard</i> - VPN O/S software for the Contivity 1600 - Contivity VPN Client software for MS-Windows with unlimited distribution license <i>Optional</i> - Contivity Stateful Firewall license - Contivity Advanced Routing license - Contivity Multi-OS client software for MAC and UNIX platforms - CD and on-line HTML documentation	- Memory: <i>Standard</i>—128MB <i>Maximum</i>—256MB 733 Mhz processor - Three PCI expansion slots - Interfaces: <i>Standard</i> 2 10/100 Ethernet LAN ports <i>Optional</i> - Additional 10/100 Ethernet - Single port V.35/X.21 - Dual port V.35 - T1 with integrated CSU/DSU - High-speed serial interface (HSSI) - Encryption accelerator card - Software: <i>Standard</i> - VPN O/S software for Contivity 2600 - Contivity VPN Client software for MS-Windows with unlimited distribution license <i>Optional</i> - Contivity Stateful Firewall license - Contivity Advanced Routing license - Contivity Multi-OS client software for MAC and UNIX platforms - CD and on-line HTML documentation	- Memory: <i>Standard</i>—256MB, <i>Maximum</i>—1 Gigabit - Dual 800 Mhz processors - Five PCI expansion slots - Interfaces: <i>Standard</i> 2 10/100 Ethernet LAN ports <i>Optional</i> - Additional 10/100 Ethernet - Single port V.35/X.21, Dual-port V.35 - T1 with integrated CSU/DSU - High-speed serial interface (HSSI) - Encryption accelerator card - Dual, redundant, auto-switching power supply system with dual line cords - Dual, redundant storage system - Software: <i>Standard</i> - VPN O/S software for Contivity 4600 - Contivity VPN Client software for MS-Windows with unlimited distribution license <i>Optional</i> - Contivity Stateful Firewall license - Contivity Advanced Routing license - Contivity Multi-OS client software for MAC and UNIX platforms - CD and on-line HTML documentation
Physical	Length: 21 in. (53.3 cm) Width: 17.25 in. (43.8 cm) Height: 3.5 in. (8.9 cm) Weight: 10.0 lb (4.5 kg) Electrical: 110–120/220–240 VAC, 2/1.25 A, 50–60 Hz	Length: 21 in. (53.3 cm) Width: 17.25 in. (43.8 cm) Height: 5.25 in. (13.3 cm) Weight: 25.0 lb (11.3 kg) Electrical: 110–240 VAC, 2.0 A, 50–60 Hz	Length: 17.0 in. (43.2 cm) Width: 17.0 in. (43.2 cm) Height: 14.0 in. (35.6 cm) Weight: 60.0 lb (27.2 kg) Electrical: 100–240 VAC, 3.0 A, 50–60 Hz
Operating environment	- Temperature: 50°–95°F (10°–35°C) - Relative humidity: 10–90% noncondensing 206 BTU/hour @ 240 VAC	- Temperature: 32°–104°F (0°–40°C) - Relative humidity: 10–90% noncondensing 297 BTU/hour @ 240 VAC	- Temperature: 32°–104°F (0°–40°C) - Relative humidity: 10–90% noncondensing 933 BTU/hour @ 240 VAC

What makes Contivity VPN Switches exceptional?

Ease of deployment and management

One box provides a full range of features for building high-performance, scalable, secure IP VPNs.

Contivity VPN Switches are easy to deploy at enterprise sites, support a wide range of interfaces, and interoperate with existing network components such as routers, firewalls, and servers.

A powerful, integrated management system provides robust VPN service management for:

- Fault management (alarm monitor, historical fault browser, and problem advisor)
- Performance management
- Accounting mediation
- Provisioning
- Creation and monitoring of service level agreements

Our integrated management systems make it easy for service providers and enterprises to bulk provision switches.

Secure directory-enabled networking

The Contivity VPN Switch accepts incoming traffic through authenticated, tunneled connections. All connections are encrypted for privacy, and all transactions are logged.

Each user, group, or branch office connection—internal or external—can have a unique filtering profile with different access rights.

Technical specifications—branch office/home office models



	Contivity 100	Contivity 400	Contivity 600
	Up to 5 tunnels	Up to 30 tunnels	Up to 30 tunnels
Components	• 16 MB RAM • 8 MB Flash memory • Interfaces: <i>Standard</i> - 1 10/100 Ethernet LAN ports - 7-port 10/100 Ethernet auto-sensing switch - Serial port—out of band management or PPP <i>Optional</i> - Additional 10/100 Ethernet ISDN (S/T and U interfaces) - Single analog modem (North American and International versions) - Dual analog modem (North American and International versions) • Contivity 100 software • CD and on-line HTML documentation	• 64 MB RAM • 8 MB Flash memory • Interfaces: <i>Standard</i> - 2 10/100 Ethernet LAN ports - 7-port 10/100 Ethernet auto-sensing switch - Serial port—out of band management or PPP <i>Optional</i> - T1 CSU/DSU with ISDN (U interface) - V.35/X.21 with ISDN (S/T and U interfaces) - ISDN (S/T and U interfaces, Dual analog modem (North American and International versions) • Contivity 400 software • CD and on-line HTML documentation	• Memory: 128MB • One PCI expansion slot • Interfaces: <i>Standard</i> - 2 10/100 Ethernet LAN ports <i>Optional</i> - Additional 10/100 Ethernet - V.35/X.21 - T1 with integrated CSU/DSU • Software: <i>Standard</i> - VPN O/S software for Contivity 600 - Contivity VPN Client software for MS-Windows with unlimited distribution license <i>Optional</i> - Contivity Stateful Firewall license - Contivity Advanced Routing license - Contivity Multi-OS client software for MAC and UNIX platforms • CD and on-line HTML documentation
Physical	Length: 14.5 in. (37 cm) Width: 12 in. (30 cm) Height: 2.64 in. (6.7 cm) Weight: 8 lb (3.6 kg) Electrical: internal 85W, 100–240 VAC	Length: 17 in (43.2 cm) Width: 15.5 in (39.4 cm) Height: 3.5 in (8.9 cm) Weight: 13.2 lb (6.0 kg) Electrical: internal 85W, 100–240 VAC	Length: 11 in (27.9 cm) Width: 8.5 in (21.6 cm) Height: 4.0 in (10.2 cm) Weight: 6 lb (2.9 kg) Electrical: 90–240 VAC, 50–60 Hz
Operating environment	• Temperature: 50–90°F (1°–35°C) • Relative humidity: 10–90% noncondensing • BTU: 290 BTU/hour @ 240 VAC	• Temperature: 32–104°F (0°–40°C) • Relative humidity: 8–80% noncondensing • BTU: 290 BTU/hour @ 240 VAC	• Temperature: 32–131°F (0°–55°C) • Relative humidity: 5–85% noncondensing • BTU: 205 BTU/hour @ 240 VAC

The Contivity family of products offers internal and external LDAP capabilities. The internal LDAP capability offers customers built-in space for storing profiles. Additional capacity can be purchased in the form of the external Netscape** LDAP option, which allows the Contivity switch to store tens of thousands of LDAP user and group profiles.

Integrated firewall protection

Contivity VPN Switches at the network center, branch office, or remote location can be integrated with a high-performance Contivity Stateful Firewall.

All connections can be authenticated, encrypted, and further protected by unique filtering profiles for each user or group—plus complete life-cycle managed digital certificate authentication using Entrust, VeriSign, or other third-party certificate authorities.

Customized service offerings

Enterprises can choose to own and manage their own IP VPNs, outsource to a service provider while retaining control over user authentication or a part of the network, or outsource all aspects of the service. When the IP VPN is provided as a managed carrier service, different management demarcation points can be defined for different enterprises.

**Models scaled and featured for small offices, mid-sized organizations, and large corporations...
...from 1 to 5,000 simultaneous tunnels**

A complete product family—models for every application

	Application	Expansion	Tunnels	Firewall
Contivity 4600	Large corporate	Five open PCI slots	5000	Stateful firewall
Contivity 2600	Medium corporate	Three open PCI slots	1000	Stateful firewall
Contivity 1600	Small corporate	One open PCI slot	200	Stateful firewall
Contivity 600	Small corporate/ branch office	One open PCI slot	30	Stateful firewall
Contivity 400	Branch/small office	Fixed configuration	30 branch tunnels only	Stateful firewall (requires NAT)
Contivity 100	Branch/small office	Fixed configuration	5 branch tunnels only	Stateful firewall (requires NAT)

High performance

A powerful Intel** architecture, redundancy for key components, multilevel authentication, hardware-based encryption card, and automatic backup of system and accounting data create a high-performance, highly reliable IP VPN switch. The hardware-based encryption card also accelerates data throughput in the Contivity switch. Using the hardware accelerator, data throughput is effectively doubled. As processor technology continually advances, the Contivity family of products continues to bring down the cost per user.

Dynamic routing

Contivity VPN Switches in the branch office and network center use the RIP v1 and v2 and OSPF routing protocols to dynamically create secure tunnels and to simplify provisioning of branch offices.

Broad client support

The Contivity VPN Client is included free, with an unlimited distribution license, and supports all Windows operating systems (OSs). This client can be tailored to include custom icons and banners, and is password-protected for

added security. Contivity clients are also available for other OSs, including Macintosh, Linux, Solaris, HP-UX, and IBM-AIX.

Furthermore, the Contivity portfolio offers broad support for IPsec-standard clients, including Microsoft clients and the Certicom-developed wireless client, which allows handheld-based devices to securely and quickly communicate through a Contivity VPN switch.

Standards-based technology

Contivity VPN Switches are equipped for evolving VPN and extranet standards, and provide a wide range of choices for tunneling, authentication, encryption, and accounting.

Branch-to-branch optimized design

New routing features (such as OSPF/ VRRP) enhance fail-over/redundancy capabilities of site-to-site VPN applications—resulting in more reliable E-business operations. In addition, DiffServ allows enterprises to effectively implement advanced bandwidth management and QoS—giving enterprises better, more predictable data throughput.

Options

Contivity Stateful Firewall

- Available for purchase as license key
- Available on the Contivity 600, 1600, 2600, and 4600

Advanced Routing

- Available for purchase as a license key
- Allows users to access powerful Contivity features such as OSPF, VRRP, Advanced Bandwidth Management, IETF DiffServ and other QoS features
- Available on the Contivity 600, 1600, 2600, and 4600

Netscape LDAP

- Allows users to store several tens of thousands of user and/or group profiles
- Available on the Contivity 600, 1600, 2600, and 4600

Hardware Accelerator

- Encryption card enables doubling of throughput
- Available on the Contivity 2600 and 4600

In summary, if you're looking to build the most secure IP VPN services—either for your own enterprise or to offer as a managed service—count on Contivity VPN Switches.

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